

I have hitherto dwelt upon the claims to our honour of Harvey the philosopher; one word, in conclusion, concerning Harvey the man. There have been great men whose personality one would gladly forget: brilliant capacities besmirched with the stains of inordinate ambition, or vanity, or avarice; or soiled by worse vices; or men of one idea, unable to look beyond the circle of their own pursuits. But no such flaw as any of these defaces the fair fame of William Harvey. The most that tradition has to say against him is, that he was quick of temper and could say a sharp thing on occasion. I do not feel disposed to cast a stone against him on that ground; but rather, such being the case, to marvel at the astonishing, not only self-control, but sweetness, displayed in his two short controversial writings—the letters to Riolan; a man who really was nothing better than a tympanic philistine, and who would have been all the better for a few sharp incisions.

Moreover, in such a temperament, while the love of appreciation is keen, the sense of wrong at unjust and wilful opposition is no less strong. But I do not recollect, in all Harvey's writings, an allusion to the magnitude of his own achievements or an angry word against his assailants.

Ready to welcome honour if it came, but quite able to be content without it; caring little for anything but liberty to follow in peace his search into the ways of the unfathomable cause of things—"sive Deus, sive Natura Naturans, sive Anima Mundi appelletur!"—one fancies this man of the true Stoic stamp would have summed up his eighty years of good and evil in the line of the poet, which was the favourite aphorism of his great contemporary, Descartes—

"Bene qui latuit bene vixit."

But he lived too well that the memory of his life should be allowed to fall into oblivion; and we may hope that recurring centennial anniversaries will find our successors still mindful of the root from whence their ever-widening knowledge has sprung.

After this Mr. Lowe replied in his usual racy style to the toast of the Universities, naturally having a little fling at the aspirations of Owens College and other recent institutions. Mr. Lowe remarked that anything like competition among the persons who conferred degrees and honours must be productive of evil. The result of such a system had been a kind of Dutch auction of degrees and honours, there being in some quarters a desire to secure as many students as possible by lowering the standard of qualification; but he was happy to think that that evil was about to be remedied, and that they were approaching a time when they would obtain what not only the medical profession, but every individual in this country had a right to demand, namely, that no one should be allowed to heave the lead into the depths of his fellow creature's physical constitution without possessing a certain proved degree of skill. That had been the dream of all sound medical reformers for a long time. It had hitherto remained only a dream, but as he had indicated, it was about to be realised, and he was bound to say that, as far as he understood the question, it was about to be so mainly through the noble and disinterested conduct of the universities, who, instead of displaying selfishness, had expressed their readiness to surrender the privilege they now enjoyed of admitting persons to the medical profession, and to hand over this duty to a certain body possessing the power of fixing a standard of qualification below which no person whatever should be admitted to practise.

Mr. Gladstone, in responding to the toast of "General Science and Literature," said—Great as had been their profession in former times, every one must feel that it was growing greater, wider, more solid from year to year and from generation to generation. He did not speak now of

\* "Exercitaciones de Generatione," Ex. 50.

literary culture; for although he felt that literature had stood in a very important relation to the medical profession of late years, still literature was necessarily fluctuating, and had been so in all periods of the world. They had gone through a great literary age, as other races had done before, and they could hardly expect the succeeding generation to maintain the same literary level. But as regarded science the case was very different. Nothing here seemed to be required but that patient labour which it was in the power of all men to bestow, together with those large opportunities for observation which we all enjoyed in some degree if we would but use them, and which medical men perhaps enjoyed in a greater degree than any other class of men. As society was developed, as civilisation became more elaborate, as the wants of men, as the enjoyments of men, and as, perhaps, also the dangers of men multiplied, and as the connection of body and mind, which was daily under their eyes, became revealed, they would find their way more and more into the very innermost chambers, so to speak, of human nature. As science progressed their responsibilities would increase, but he was sure they would never be wanting in that capacity and zeal which had ever distinguished them, and that in proportion as their influence over human welfare and human happiness increased, they would obtain that respect and gratitude which, amid their imperfections, mankind were ever ready to extend to their benefactors.

#### OUR ASTRONOMICAL COLUMN

THE TRANSIT OF MERCURY.—Unfavourable weather appears to have very generally interfered with observations of the first contacts in the transit of May 6, in this country, and in France a similar adverse state of atmospheric conditions also prevailed. At Antwerp, Christiania, Göttingen, Josephstadt (Vienna), Kiel, and San Fernando (Cadiz), the contacts were observed and the results have been mostly published in the *Astronomische Nachrichten*. In two cases only is there any distinction made between what has been called geometrical contact, when Mercury appears perfectly round and his outer limb in coincidence with the sun's limb, and the instant when a fine filament of light is perceptible (or a connecting ligament is broken) which more correctly distinguishes the true internal contact. Thus at Kiel the time was noted when the planet appeared round and when the narrow luminous thread (*deutlicher Lichtfaden*) appeared. But the most complete observations of the first contacts hitherto printed are those made at the Observatory of San Fernando, near Cadiz, which are detailed in a circular issued on May 8, by Señor Cecilio Pujazon, the director of the establishment. Amongst the observers were Señores Garrido and La Flor, who had also experience in the case of the transit in November, 1868, at the same observatory, and with the same or very similar instruments, achromatics by Troughton and Simms of 80 mm. aperture. Three of the observers distinguish between what is termed "first internal contact" and separation of the limbs (*desprendimiento de los límbos*), the mean interval noted between the two phases being 18 seconds.

At Palermo the contacts were noted both with the spectroscope and on the ordinary telescopic method. Prof. Tacchini communicated the particulars to the Paris Academy of Sciences on May 20, at the same time stating that he had been informed of the ill-success attending the observation of the transit at Naples, Florence, Venice, Gallarate (Baron Dembowski's observatory), Genoa, and Modena, on account of unfavourable skies.

In the United States the phenomenon appears to have excited a very unusual degree of interest, occasioned, no doubt, by the instructions for observing it widely-circulated by the authorities of the Naval Observatory,

Washington, and the presence in the country of a special expedition composed of French astronomers. Judging from the accounts published in the New York papers on May 7, observations were more or less successful in many astronomical institutions, both the first and last contacts being generally well observed, and numerous photographs obtained during the passage of the planet across the sun's disc. At Ogden, Utah, where the French astronomers were located, the clouds prevented more than imperfect observations of the first contacts; but those at egress were satisfactory. Up to one o'clock only three photographs were obtained, but subsequently as many as seventy-five were secured, and the results, as a whole, were considered satisfactory. At the observatory of Dr. Draper, Hastings, on the Hudson, a number of observers, including Prof. Holden, of Washington, availed themselves of the admirable instrumental resources, and the weather being for the most part advantageous, very good results attended their efforts: of eighteen negatives taken by Dr. Draper several were particularly perfect. In addition to observations at the U.S. Naval Observatory Prof. Newcomb and assistants made satisfactory ones at the office of the *American Ephemeris* in Washington, noting the first internal contact at 10h. 7m. 43s. A.M., according to the *New York Times*, and the second internal contact at 5h. 53m. 50s. P.M.

The following differences between the calculated and observed times of first internal contact have been obtained by comparison with Leverrier's elements, with Newcomb's value of the solar parallax; the Greenwich mean time for the centre of the earth resulting from a calculation of somewhat greater refinement than that previously introduced in this column being 3h. 16m. 12<sup>5</sup>s.

Place of Observation.	Observed	G.M.T.	Error of Calculation.
	reduced to earth's centre.	h. m. s.	
Antwerp	3 15 46 <sup>0</sup>	+ 26 <sup>5</sup>	Two observers.
Christiansia	— 41 <sup>2</sup>	+ 31 <sup>3</sup>	"Apparent internal contact."
	— 52 <sup>9</sup>	+ 19 <sup>6</sup>	"True internal contact."
Göttingen	— 34 <sup>8</sup>	+ 37 <sup>7</sup>	Prof. Klinkerfues.
"	— 47 <sup>7</sup>	+ 24 <sup>8</sup>	Boedicker and Heidorn.
Josephstadt	— 48 <sup>5</sup>	+ 24 <sup>0</sup>	Three observers.
Kiel	— 38 <sup>6</sup>	+ 33 <sup>9</sup>	Planet round.
"	— 53 <sup>3</sup>	+ 19 <sup>2</sup>	"Deutlicher Lichtfaden."
Palermo	— 55 <sup>9</sup>	+ 16 <sup>6</sup>	Spectroscope.
"	— 46 <sup>1</sup>	+ 26 <sup>4</sup>	Ordinary telescopic method.
San Fernando	— 49 <sup>1</sup>	+ 23 <sup>4</sup>	Geometrical contact.
"	3 16 11 <sup>7</sup>	+ 0 <sup>8</sup>	Separation of limbs.
Washington	3 15 58 <sup>4</sup>	+ 14 <sup>1</sup>	{ Prof. Newcomb and assistants.

The Greenwich mean time of second internal contact similarly calculated is 10h. 43m. 57<sup>3</sup>s., which, compared with Prof. Newcomb's observations at Washington, shows a difference of + 19<sup>6</sup>s. Other observations of the second internal contact given in the New York journals are either provisionally reduced or apparently affected by typographical errors or errors of transmission.

**THE ZODIACAL LIGHT AND SUN-SPOT FREQUENCY.**—In a letter addressed to Gruithuisen in February, 1839, published by the latter in his *Astronomisches Jahrbuch* for 1840, Olbers remarks, "My grandson, Wilhelm Focke, Doctor of Law, who with attachment and zeal often contemplates and scrutinises the starry heavens, asserts that the zodiacal light has been observed in January and February with quite exceptional brightness;" which, Gruithuisen observes in a note, is "a new confirmation of Cassini's observation that the zodiacal light is much more brilliant when numerous and large sun-spots are present, and diminishes in brightness when the spots are few. My observations show that during January and February the sun has exhibited unusually large and numerous spots," and he adds, "viel Licht und fast immer eine grosse negative Refraction." This refers to Cassini's concluding statement in his memoir entitled "Découverte de

la lumière céleste qui paraît dans le Zodiaque." "It is a remarkable circumstance that since the end of the year 1688, when this light began to grow fainter, spots have no longer appeared in the sun, while in the preceding years they were very frequent, which seems to support in some manner the conjecture that this light may arise from the same emanations as the spots and *faculae* of the sun." In a previous part of the memoir Cassini, endeavouring to assign a possible cause for the appearance of the zodiacal light, remarks that the observations of that century had made known that the sun is not only the source of light, but also of "une matière propre à terminer, à détourner, et à réfléchir ses rayons;" and that "cette matière ne coule pas toujours de la même manière, mais qu'elle a des vicissitudes sans règle, selon lesquelles nous voyons en certain temps dans son disque des facules, qui sont plus claires que le reste de la surface, et des taches obscures qui ne sont point pénétrées par sa lumière." And he goes on to say that if the matter which is the subject of this light is of the same nature as that which forms the *faculae* and spots on the sun, it should be liable to the same changes and irregularities. However inadequate or incorrect is the explanation of the spots and *faculae* given by Cassini, his conjecture that the brightness of the zodiacal light varies with the number and magnitude of the solar spots is worthy of note, though we do not remember to have seen any allusion to it in our popular astronomical treatises.

#### THE INTERNATIONAL GEOLOGICAL CONGRESS

THE time of the opening of this Congress in Paris has been finally fixed by the local committee for the 29th August, and the Congress will remain in session about two weeks. Further details as to organization and place of meeting will soon be made public. Meanwhile, it is announced that from the 20th August to the 15th September, the library and reading-rooms of the Geological Society of France, No. 7, rue des Grands-Augustins, Paris, will be at the service of members of the Congress. As before, it is requested that all those who desire to take part therein will make it known to the general secretary, Dr. Ed. Jannetaz, at the above address, where, also, the subscription of twelve francs, required for each member, may be sent to Dr. Bioche, treasurer. Ladies are admitted to the Congress.

The local committee add to the above announcements:—There is reason to believe that the numerous collections of geology and palaeontology, minerals, rocks, fossils, maps, sections, plans, models in relief, &c., to be found in the *Exposition Universelle*, will realise the expectations expressed in the circular of the International Committee, of an International Geological Exhibition. All exhibitors of such collections are requested to send, as above, such lists as will enable the secretary-general, Dr. Jannetaz, to prepare a special catalogue of them for the use of the Congress.

T. STERRY HUNT,  
Secretary of the International Committee

#### A KINEMATICAL THEOREM

TAKE a plane, and, for clearness of idea, consider it as fixed horizontally. On this fixed plane lay another, and throughout the subsequent movement let the surfaces of the two planes always remain in contact. Now let the upper plane, starting from any position, be moved about in any manner whatever, making any number (*N*) of rotations, the points on it describing curves of any desired degree of complexity on the lower plane; and let it finally settle down again into its initial position, the curves described by the points on it being, in consequence, closed curves. Take the upper plane, and let us investigate the position on it of those points which have described curves of any given area (*A*) on the fixed plane.